REMARKS

The claims have been amended to more specifically define the environment of the present invention as that of a distance determining system and method between a portable wireless communication device and an RF equipped Point-of-Sale (POS) device that uses pulse code modulation (PCM) signals.

Clifford is cited against the present invention as teaching "creating a multi-tone acoustic signal in the form of a radio signal [i.e., first digital audio samples]". While Clifford does describe the generation, transmission, and reception of a radio alarm signal, the Clifford signal is not a multi-tone signal as claimed in the present invention. Clifford uses a single "tone emission". (See, col. 4, ln. 1)

This is significant because of the different purposes of Clifford and the present invention. Clifford's system is less concerned with accuracy and more concerned about quickly finding the source of the transmission, a presumably injured firefighter. The present invention's paramount concern is accuracy in both authentication of the transmitting device and distance to the transmitting device. To obtain an accurate authentication of the radio signal to the audio signal, both are modulated using PCM. The more complex PCM modulated multi-tone radio signal is compared to the PCM modulated acoustic signal in the receiver to ensure that the exact same signal data has been received.

Clifford is also cited as teaching "decoding [i.e., converting] the first FSK bit sequence [i.e., digital audio samples] to an audible FSK bit sequence [i.e., analog audio waveform] such that the audible FSK bit sequence is the acoustic equivalent of the first FSK bit sequence". This is wholly unsupported by the Clifford disclosure. Clifford at no point mentions using an FSK modulation methodology or any other specific modulation scheme for that matter. Even so, the present invention utilizes a far more complex PCM scheme. Clifford does not state, either explicitly or implicitly, that the acoustic signal is the *equivalent* of the radio signal.

Rather, Clifford uses the word "corresponding" to link the acoustic signal and the radio signal. From the context of Clifford, it is clear that the corresponding nature of the radio and acoustic signal is temporal meaning that a radio signal and an acoustic signal are simultaneously emitted by the transmitter. There is no teaching of using the same or equivalent signal data for both the radio and acoustic signal.

Clifford can emit an acoustic tone that is different from the radio signal data and still perform a distance measurement based on the different arrival times at the receiver. The present invention, however, must verify that the radio signal and the acoustic signal are born from the same underlying data before performing a distance calculation.

Thus, there is no teaching in Clifford of "converting the {PCM modulated} first digital audio samples to an analog audio waveform such that the analog audio waveform is the acoustic equivalent of the {PCM modulated} first digital audio samples".

Marcie is cited against the present invention as teaching "converting the received signal to second digital audio samples". The Examiner has completely removed the context of the conversion from his analysis. Marcie describes a system and method for interfacing a modem to a computer so that the modem can act as a speakerphone. This is a full duplex communications system between two parties that involves multiple analog-to-digital and digital-to-analog conversions of voice data. The field of the Marcie invention and the field of the present invention are completely unrelated. Marcie has merely been cited as containing an analog-to-digital converter and applied to the present invention which performs an analog-to-digital conversion of a received acoustic signal.

Saylors is cited against the present invention as teaching "comparing the first digital audio samples against the second digital audio samples to determine if they match".

Saylors, however, does **not** teach "comparing the first digital audio samples against the second digital audio samples to determine if they match".

The intent of Saylors is to determine a distance between two stations using acoustic determination. Station 1 transmits an RF version of a pre-selected FSK coded signal. Station two decodes the pre-selected FSK coded signal and compares it to the expected FSK coded value. Upon verification, the same pre-selected FSK coded signal is audibly transmitted from station 2 back to station 1 where it is again compared to the expected FSK coded value. If verified, a distance calculation can be performed.

Frequency shift keying (FSK) is a modulation technique that translates a 0 or 1 into something that can be carried over telephone lines. It is mainly used for coding discrete tones like the sounds a modem makes when it is connecting to another modem. Pulse code modulation (PCM), however, is a modulation technique for encoding actual voice into a digital bit stream. It is far more complex than FSK and provides for finer distance and ambiguity resolution.

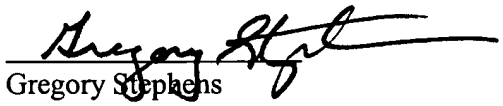
In the present invention the first digital audio samples are clearly defined as a PCM modulated digitized bit stream that was transferred via an RF link while the second digital audio samples are clearly defined as a PCM modulated digitized version of the received multi-tone acoustic signal that was transmitted acoustically. As described by the claims, the comparison between the first and second digital audio samples takes place in a single device in the present invention.

Saylors does not compare a received RF signal to a received acoustic signal because Saylors does not receive an RF signal **and** an acoustic signal in the same device. In the cited portion of the reference (col. 3, lns. 40-66), Saylors teaches transmitting a pre-selected digitized frequency shift keyed (FSK) signal from station 1 to station 2 and receiving the same pre-selected acoustic FSK signal from station 2 into station 1. A comparison is performed in station 2 between the received RF signal of the FSK coded value to the known pre-selected FSK coded value. Similarly, a comparison is performed in station 1 between the received acoustic signal of the FSK coded value to the known pre-selected FSK coded value. Thus, the RF signal and the

acoustic signal are never compared to each other as is done in the present invention. Moreover, each comparison occurs in a separate device as opposed to a single device as described by the present invention.

Thus, the prior art combination of the Clifford, Marcie, and Saylors patents does not (i) teach each element or step, nor (ii) provide a reasonable motivation for combining the references. Applicant respectfully requests that the 35 USC 103(a) rejections cited in paragraphs 4, 6, and 7 of the most recent office action be reconsidered and withdrawn.

Respectfully submitted,



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